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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BALASUBRAMANIAN, VENKATARAMAN	
ART UNIT	**PAPER NUMBER**
1624	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/689,982	COLLA ET AL.	
	Examiner	Art Unit	
	Venkataraman Balasubramanian	1624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-7 and 9-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-7 and 9-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/2/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendment, which included cancellation of claims 4 and 8 and amendment to claims 1 and 2, filed on 10/21/2003, is made of record. Claims 1-3, 5-7 and 9-12 are now pending.

Information Disclosure Statement

References cited in the Information Disclosure Statement, filed on 4/2/2004, are made of record.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 5-7 and 9-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Following apply. Any claim not specifically rejected is rejected herein as it is dependent on a rejected claim and shares the same indefiniteness.

1. Recitation of X is CH_2 and then X= CHK wherein K is hydrogen in claim 1 is confusing and unclear as to what is the difference between the choices.

2. Recitation of "soluble derivative" thereof in claims 1, 5 and 9-12 renders these claims and their dependent claims (if any) indefinite as the term derivative implies more than what is being positively recited therein. A derivative can be any organic compound appended to compound of formula A and it is not clear what else is claimed other than

compound of formula A. In addition, it is not clear what would be a soluble derivative and what its structural make-up.

3. Recitation of "derivative" in various additional ingredients choices in claim 12 renders claim 12 indefinite as it is not clear what else is include in the composition.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9, 11 and 12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating HIV infection, does not reasonably provide enablement for preventing HIV infection. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Following apply.

The instant claims 9, 11 and 12 are drawn to, besides treating, "preventing HIV infection. Instant claims, as recited, are reach through claims. A reach through claim is a claim drawn to a mechanistic, receptor binding or enzymatic functionality in general format and thereby reach through a scope of invention for which they lack adequate written description and enabling disclosure in the specification.

In the instant case, based on the inhibition of HIV reverse transcriptase by the instant compounds, instant claims reaches through inhibiting and treating any or all diseases in general and thereby they lack adequate written description and enabling disclosure in the specification.

More specifically, in the instant case, based on the mode of action of instant

compounds as inhibitor of reverse transcriptase, based on limited assay, it is claimed that preventing HIV infection for which there is no enabling disclosure.

The instant compounds are disclosed to have HIV reverse transcriptase inhibitory activity and it is recited that the instant compounds are therefore useful in preventing HIV infection for which applicants provide no competent evidence. It appears that the applicants are asserting that the embraced compounds because of their mode action as HIV reverse transcriptase inhibitor that they would be useful for preventing said HIV infection. However, the applicants have not provided any competent evidence that the instantly disclosed tests are highly predictive for preventing HIV for the intended host.

To prevent" actually means to anticipate or counter in advance, to keep from happening etc. (as per Websters II Dictionary) and there is no disclosure as to how one skilled in the art can reasonably establish the basis and the type of subject to which the instant compounds can be administered in order to have the "prevention" effect. There is no evidence of record, which would enable the skilled artisan in the identification of the people who have the potential of becoming afflicted with the inflammatory and or immune disease(s) or disorder(s) claimed herein.

That a single class of compounds can be used to prevent HIV infection in general embraced in the claims is an incredible finding for which applicants have not provided supporting evidence. Moreover, HIV infection is very difficult to treat and despite the fact that there are many drugs including several reverse transcriptase inhibitors, HIV protease inhibitors and integrase inhibitors, none of them have found to prevent the said disease.

Note substantiation of utility and its scope is required when utility is "speculative", "sufficiently unusual" or not provided. See Ex parte Jovanovics, 211 USPQ 907, 909; In re Langer 183 USPQ 288. Also note Hoffman v. Klaus 9 USPQ 2d 1657 and Ex parte Powers 220 USPQ 925 regarding type of testing needed to support in vivo uses.

Next, applicant's attention is drawn to the Revised Interim Utility and Written Description Guidelines, at 64 FR 71427 and 71440 (December 21, 1999) wherein it is emphasized that 'a claimed invention must have a specific and substantial utility'. The disclosure in the instant case is not sufficient to enable the instantly claimed method of preventing solely based on the inhibitory activity disclosed for the compounds. Prior art search in this area only lend support for treating the HIV infection not preventing HIV infection.

In evaluating the enablement question, several factors are to be considered. Note *In re Wands*, 8 USPQ2d 1400 and *Ex parte Forman*, 230 USPQ 546. The factors include: 1) The nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the art, 4) the amount of direction or guidance present, 5) the presence or absence of working examples, 6) the breadth of the claims, and 7) the quantity of experimentation needed.

1) The nature of the invention: Therapeutic use of the compounds in preventing HIV infection that require reverse transcriptase inhibitory activity.

2) The state of the prior art: Prior art in the related area teach treating HIV infection using reverse transcriptase inhibitors and or protease inhibitors but not preventing the said infection.

3) The predictability or lack thereof in the art: Applicants have not provided any competent evidence or disclosed tests that are highly predictive for the pharmaceutical use for preventing HIV infection based on the said mode of action. Pharmacological activity in general is a very unpredictable area. Note that in cases involving physiological activity such as the instant case, "the scope of enablement obviously varies inversely with the degree of unpredictability of the factors involved". See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

4) The amount of direction or guidance present and 5) the presence or absence of working examples: Specification has no working examples to show preventing HIV infection and the state of the art does no lend support for preventing HIV infection using reverse transcriptase inhibitors..

6) The breadth of the claims: The instant claims embrace preventing HIV infection due to inhibition of reverse transcriptase.

7) The quantity of experimentation needed would be an undue burden to one skilled in the pharmaceutical arts since there is inadequate guidance given to the skilled artisan, regarding the pharmaceutical use, for the reasons stated above.

Thus, factors such as "sufficient working examples", "the level of skill in the art" and "predictability", etc. have been demonstrated to be sufficiently lacking in the instant case for the instant method claims. In view of the breadth of the claims, the chemical

nature of the invention, the unpredictability of enzyme-inhibitor interactions in general, and the lack of working examples regarding the activity of the claimed compounds towards preventing HIV infection, one having ordinary skill in the art would have to undergo an undue amount of experimentation to use the instantly claimed invention commensurate in scope with the claims.

MPEP §2164.01(a) states, "A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was 'filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. In re Wright, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)." That conclusion is clearly justified here and undue experimentation will be required to practice Applicants' invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-7 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Artico et al., WO 96/10565.

Artico et al., teaches several 6-benzyl-4-oxopyrimidines for treatment of viral infections such as HIV, which include instant compounds, composition, process of making and method of use. See page I, formula I. With the given definition of various variable groups, compounds taught by Artico include instant compounds. See entire document, especially Table 2-5 for various compounds made.

Claims 1, 5-7 and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Aroyan et al., Arm. Khim. Zh. 24(2): 161-166, 1971 (cited in the IDS).

See compounds shown in the CAPLUS Abstract.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim1-3, 5 and 10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 20-23 of U.S. Patent No.

6,545,007. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter namely compound and pharmaceutical composition embraced in the instant claims are also embraced in the pharmaceutical composition claims 20-23 of the US 6,545,007. Note claim 20 includes instant compounds and the composition. Thus, it would be obvious to one trained in the art to make the pharmaceutical composition including those compounds embraced in the instant claims and expect the said composition useful as pharmaceuticals.

Claims 1-3, 5-7 and 9-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15, 17-25 and 30-46 of copending Application No. 10/350,772. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter namely the pharmaceutical composition of compound of formula A and the method of use embraced in the instant claims are also embraced in the pharmaceutical composition of compound of formula A and method of use claims 1-15, 17-25 and 30-46 of copending application 10/350,772. Thus, it would be obvious to one trained in the art to make the pharmaceutical composition including those compounds embraced in the instant claims and expect the said composition useful as pharmaceuticals.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3, 5-7 and 9-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 and 29 of copending Application No. 11/327,672. Although the conflicting claims are not identical,

they are not patentably distinct from each other because the subject matter namely the pharmaceutical composition of compound of formula A and the method of use embraced in the instant claims are also embraced in the compound of formula A, pharmaceutical composition of compound of formula A and method of use claims 1-25 and 29 of copending application 11/327,672. Thus, it would be obvious to one trained in the art to make the pharmaceutical composition including those compounds embraced in the instant claims and expect the said composition useful as pharmaceuticals.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3, 5-7 and 9-12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 and 37-80 of copending Application No. 10/833,601. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter namely the pharmaceutical composition of compound of formula A and the method of use embraced in the instant claims are also embraced in the compound of formula I, pharmaceutical composition of compound of formula I and method of use claims 1-8 and 37-80 of copending application 10/833,601. Thus, it would be obvious to one trained in the art to make the pharmaceutical composition including those compounds embraced in the instant claims and expect the said composition useful as pharmaceuticals.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication from the examiner should be addressed to Venkataraman Balasubramanian (Bala) whose telephone number is (571) 272-0662. The examiner can normally be reached on Monday through Thursday from 8.00 AM to 6.00 PM. The Supervisory Patent Examiner (SPE) of the art unit 1624 is James O. Wilson, whose telephone number is 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAG. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-2 17-9197 (toll-free).

Venkataraman Balasubramanian

9/4/2006